

PATENT COOPERATION TREATY

From the
INTERNATIONAL SEARCHING AUTHORITY

PCT

To:

see form PCT/ISA/220

WRITTEN OPINION OF THE INTERNATIONAL SEARCHING AUTHORITY (PCT Rule 43bis.1)

Date of mailing
(day/month/year) see form PCT/ISA/210 (second sheet)

Applicant's or agent's file reference
see form PCT/ISA/220

FOR FURTHER ACTION
See paragraph 2 below

International application No.
PCT/GB2004/004418

International filing date (day/month/year)
19.10.2004

Priority date (day/month/year)
20.10.2003

International Patent Classification (IPC) or both national classification and IPC
A24D3/16

Applicant
FILTRONA INTERNATIONAL LIMITED

1. This opinion contains indications relating to the following items:

- ☒ Box No. I Basis of the opinion
- ☐ Box No. II Priority
- ☐ Box No. III Non-establishment of opinion with regard to novelty, inventive step and industrial applicability
- ☐ Box No. IV Lack of unity of invention
- ☒ Box No. V Reasoned statement under Rule 43bis.1(a)(i) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement
- ☐ Box No. VI Certain documents cited
- ☐ Box No. VII Certain defects in the international application
- ☐ Box No. VIII Certain observations on the international application

2. FURTHER ACTION

If a demand for international preliminary examination is made, this opinion will usually be considered to be a written opinion of the International Preliminary Examining Authority ("IPEA"). However, this does not apply where the applicant chooses an Authority other than this one to be the IPEA and the chosen IPEA has notified the International Bureau under Rule 66.1bis(b) that written opinions of this International Searching Authority will not be so considered.

If this opinion is, as provided above, considered to be a written opinion of the IPEA, the applicant is invited to submit to the IPEA a written reply together, where appropriate, with amendments, before the expiration of three months from the date of mailing of Form PCT/ISA/220 or before the expiration of 22 months from the priority date, whichever expires later.

For further options, see Form PCT/ISA/220.

3. For further details, see notes to Form PCT/ISA/220.

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**WRITTEN OPINION OF THE
INTERNATIONAL SEARCHING AUTHORITY**

International application No.
PCT/GB2004/004418

AP2004/004418 20 APR 2006

Box No. I Basis of the opinion

1. With regard to the **language**, this opinion has been established on the basis of the international application in the language in which it was filed, unless otherwise indicated under this item.
 - ☐ This opinion has been established on the basis of a translation from the original language into the following language , which is the language of a translation furnished for the purposes of international search (under Rules 12.3 and 23.1(b)).
2. With regard to any **nucleotide and/or amino acid sequence** disclosed in the international application and necessary to the claimed invention, this opinion has been established on the basis of:
 - a. type of material:
 - ☐ a sequence listing
 - ☐ table(s) related to the sequence listing
 - b. format of material:
 - ☐ in written format
 - ☐ in computer readable form
 - c. time of filing/furnishing:
 - ☐ contained in the international application as filed.
 - ☐ filed together with the international application in computer readable form.
 - ☐ furnished subsequently to this Authority for the purposes of search.
3. ☐ In addition, in the case that more than one version or copy of a sequence listing and/or table relating thereto has been filed or furnished, the required statements that the information in the subsequent or additional copies is identical to that in the application as filed or does not go beyond the application as filed, as appropriate, were furnished.
4. Additional comments:

**WRITTEN OPINION OF THE
INTERNATIONAL SEARCHING AUTHORITY**

International application No.
PCT/GB2004/004418

Box No. V Reasoned statement under Rule 43*bis*.1(a)(i) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement

1. Statement

Novelty (N)	Yes: Claims	10-12 20
	No: Claims	1-9 13-19 21-26
Inventive step (IS)	Yes: Claims	10-12 20
	No: Claims	1-9 13-19 21-26
Industrial applicability (IA)	Yes: Claims	1-26
	No: Claims	

2. Citations and explanations

see separate sheet

**WRITTEN OPINION OF THE
INTERNATIONAL SEARCHING
AUTHORITY (SEPARATE SHEET)**

2004 0659
APR 2006

International application No.

PCT/GB2004/004418

Re Item V

**Reasoned statement with regard to novelty, inventive step or industrial applicability;
citations and explanations supporting such statement**

Reference is made to the following documents:

D1: US 3 460 543

D2: US 5 540 759

D3: GB 2 065 091

1. Novelty

The present application does not meet the criteria of Article 33(1) PCT, because the subject-matter of claims 1-9,13-19,21-26 is not new in the sense of Article 33(2) PCT.

The expression "high activity" is a relative expression which does not appear to have a precise meaning, therefore the expression must be disregarding for the assessment of the novelty and the inventive activity of claim 1.

The document D1 discloses a tobacco smoke filter containing (highly) activated carbon impregnated with 1 to 13wt% of a metal oxide impregnant, such as copper oxide and molybdenum oxide, in a ratio greater than 1:1.3 (see col. 4, lines 30-33; example 1, table 7, sample 7 and claims). The amount of copper oxide and molybdenum oxide in sample 7 is about 11% of the dry weight of the activated carbon, therefore the combined amount of metal is not more than 10% of the dry weight of the activated carbon. The particle size of the carbon is preferably comprised in the range of 14 to 40 US mesh (1.41-0.42mm) (see examples 1 and 2) and the filter is loaded with 100-120mg of impregnated active carbon.

It is furthermore considered that a "highly activated" carbon as defined in D1 would inherently provide an activity of greater than 90% CTC pick-up before impregnation.

Therefore the subject matter of claims 1-9,13-19,21-26 is not novel.

The document D2 discloses a tobacco smoke filter containing a highly microporous activated carbon impregnated with .5 to 15wt% of a transition metal salt which is preferably copper (see

claims, example 2 and col 5, lines 37-41).

Thus in view of D2, the subject matter of claims 1-5 is not novel.

The document D3 describe a filtration material for tobacco smoke filters comprising an activated carbon loaded with 0 to 10% copper (see e.g. example XIV). The carbon particles have a size of 12-30 British Mesh (1.4 to 0.5 mm).

The subject-matter of claims 1-5, 17-19 and 22-26 is therefore also anticipated by the document D3.

2. Inventive step

The combination of the features of dependent claims 10-12 and 20 is neither known from, nor rendered obvious by, the available prior art. The reasons are as follows:

The document D1 which is considered to reflect the closest prior art document differs from the subject-matter of claims 10-12 in that the ratio of copper to molybdenum is lower than 2 to 1. The skilled person would have no reason to modify the ratio of copper to molybdenum of D1. Similarly, the effects achieved at low levels of activated carbon (as defined in claim 20) in the filter could not be inferred from the teachings of D1.